REMARKS

This paper is being provided in response to the Office Action dated July 10, 2007, for the above-referenced application. In this response, Applicants have amended claims 3, 4, 6, 7, 14, 15, 17, 18 and 19 to clarify that which Applicants consider to be the presently-claimed invention. Applicants respectfully submit that the amendments to the claims are fully supported by the originally-filed specification.

The rejection of claims 3, 4, 14, 17 and 19-22 under 35 U.S.C. 103(a) as being anticipated by Balendonck, et al., "Application of an Intelligent Dielectric Sensor for Soil Water Content, Electrical Conductivity and Temperature," IEEE, pp. 1817-1822, 2001, (hereinafter "Balendonck") in view of U.S. Patent No. 6,320,393 to Yasui (hereinafter "Yasui") is hereby traversed and reconsideration is respectfully requested in view of the amendments to the claims contained herein.

Independent claim 3, as amended herein, recites a measuring system for determining a property of an oil from a dielectric property of the oil including a first sensor for measuring an electric capacitance and a second sensor for measuring a temperature. The first sensor is designed as a dielectric sensor which is immersed in the oil and has a stray-field capacitor which functions as the measuring capacitor, and the second sensor is designed as a temperature sensor which is immersed in the oil. The first and second sensors are each connected to an analyzer device which assigns a value of the property to be determined to a measured temperature value and a measured electric capacitance value. The value of the electric capacitance measured by the dielectric sensor is compared in a comparator device of the analyzer device with a stored

reference value assigned to the measured temperature value, and a signal is output as a function of whether the reference value is reached or exceeded.

Independent claim 4, as amended herein, recites a measuring system for determining a property of an oil from a dielectric property of the oil including a first sensor for measuring an electric capacitance and a second sensor for measuring a temperature. The first sensor is designed as a dielectric sensor which is immersed in the oil and has a stray-field capacitor which functions as the measuring capacitor, and the second sensor is designed as a temperature sensor which is immersed in the oil. A compensation device is included for correcting the measured value of the electric capacitance, taking into account a capacitance reference value measured on an auxiliary capacitor situated in proximity to the measuring capacitor.

Independent claim 6, as amended herein, recites a sensor system for measuring a dielectric property of an oil including a dielectric sensor which is immersed in the oil and has a measuring capacitor designed as a stray-field capacitor. The sensor has an auxiliary capacitor and on introduction of the sensor into the oil, the auxiliary capacitor is not immersed in the oil until the measuring capacitor is fully immersed in the oil, wherein feeder lines of the measuring capacitor and the auxiliary capacitor are identical in design and are arranged in mutual symmetry. Claims 8-13 depend directly or indirectly from independent claim 6.

Independent claim 7, as amended herein, recites a sensor system for measuring a dielectric property of an oil including a dielectric sensor which is immersed in the oil and has a measuring capacitor designed as a stray-field capacitor. The sensor has an auxiliary capacitor

and on introduction of the sensor into the oil, the auxiliary capacitor is not immersed in the oil until the measuring capacitor is fully immersed in the oil, wherein the auxiliary capacitor is composed of at least one spur line which ends upstream from the measuring capacitor and is designed and arranged like the feeder lines of the measuring capacitor.

Independent claim 14, as amended herein, recites a measuring system for determining a property of an oil from a dielectric property of the oil including a first sensor for measuring an electric capacitance and a second sensor for measuring a temperature. The first sensor is designed as a dielectric sensor which is immersed in the oil and has a stray-field capacitor which functions as the measuring capacitor, and the second sensor is designed as a temperature sensor which is immersed in the oil. The first and second sensors are each connected to an analyzer device which assigns a value of the property to be determined to a measured temperature value and a measured electric capacitance value, and wherein the value of the electric capacitance measured by the dielectric sensor is compared in a comparator device of the analyzer device with a stored reference value assigned to the measured temperature value, and a signal is output as a function of whether the reference value is reached or exceeded.

Independent claim 15, as amended herein, recites a sensor system for measuring a dielectric property of an oil including a dielectric sensor which is immersed in the oil and has a measuring capacitor designed as a stray-field capacitor. The sensor has an auxiliary capacitor and on introduction of the sensor into the oil, the auxiliary capacitor is not immersed in the oil until the measuring capacitor is fully immersed in the oil. Feeder lines of the measuring capacitor and the auxiliary capacitor are identical in design and are arranged in mutual

symmetry, wherein the auxiliary capacitor is composed of at least one spur line which ends upstream from the measuring capacitor and is designed and arranged like the feeder lines of the measuring capacitor. The measuring capacitor is formed by a plurality of flat printed conductors in particular in the form of interdigital capacitor, and wherein the printed conductors are printed on an insulating substrate by thin-film or thick-film methods.

Independent claim 18, as amended herein, recites a measuring device including a first sensor that measures a first property of an oil and outputs a first measured value and a second sensor that measures a second property of said oil and outputs a second measured value. An analyzer device is connected to said first and second sensors, wherein said analyzer device compares said first and second measured values with stored reference values and outputs at least one signal based on differentials between said measured values and said stored reference values, wherein the first sensor is a capacitor having conductive feeder lines disposed on an insulating substrate.

Independent claim 19, as amended herein, recites a measuring device including a first sensor that measures a first property of an oil and outputs a first measured value and a second sensor that measures a second property of said oil and outputs a second measured value. An analyzer device is connected to said first and second sensors, wherein said analyzer device compares said first and second measured values with stored reference values and outputs at least one signal based on differentials between said measured values and said stored reference values. A compensation device takes calibrating measurements of said first and second properties. Claims 17 and 20-22 depend directly or indirectly from independent claim 19.

The Balendonck reference discloses an intelligent dielectric sensor for measuring soil water content, electrical conductivity and temperature. As noted by Balendonck, since water is a polar molecule, and therefore has a high dielectric constant, water content is one of the major material properties that may be analyzed with dielectric measuring principles. (See page 1818, left col. of Balendonck). Balendonck discloses that the sensor incorporates an application specific integrated circuit to measure dielectric properties, a micro-processor and calibration data memory for determining soil water content and properties. (See page 1822 of Balendonck.)

The Yasui reference discloses a fluid dielectric constant sensing device and method. The Office Action cites to Yasui as disclosing an electrode electrically connected to ground of a sensor circuit, both ends of a cylindrical coil being connected to a resonator circuit, an output of the resonator circuit being connected to an output circuit, and a temperature measuring circuit to execute temperature compensation.

Applicants' independent claims, as amended herein, recite measuring and sensor systems for determining a property of an oil from a dielectric property of the oil. Applicants disclose that oils, in particular, are subject to an aging process which is influenced by high temperatures, among other things, and in which various chemical reactions take place that alter the quality of the particular oil. (See, for example, page 1, lines 16-18 of the originally-filed specification). Applicants recite a system for determining a property of an oil, such as age of the oil resulting from the aging process, from the dielectric property of the oil, including features multiple sensors and/or capacitors for determining the property from the dielectric property. For example, the

sensors may be connected to analyzer device which assigns a value of the property to be determined to a measured temperature value and a measured electric capacitance value, wherein the value of the electric capacitance measured by the dielectric sensor is compared with a stored reference value assigned to the measured temperature value, and a signal is output as a function of whether the reference value is reached or exceeded.

In contrast to the above, Balendonck discloses a dielectric sensor for measuring soil water content, electrical conductivity and temperature. Balendonck discloses application specific integrated circuitry for determining the soil water content and properties, and, as noted above, details the advantages using the technique on water due to water being a polar molecule. Applicants respectfully submit that Balendonck does not teach or fairly suggest the measuring and sensor systems and devices for determining a property of an oil from a dielectric property of the oil, as recited by Applicants, that Applicants have identified as advantageous for determining properties of oils that are subject to an aging process.

Further, Applicants respectfully submit that Yasui does not overcome the above-noted deficiencies of the Balendonck reference with respect to Applicants' present claims. Accordingly, Applicants respectfully submit that neither Balendonck nor Yasui, taken alone or in combination, teach or fairly suggest a measuring or sensor system for determining a property of an oil from a dielectric property of the oil having at least the above-noted features as claimed by Applicants. Accordingly, in view of the above, Applicants respectfully request that the rejection be reconsidered and withdrawn.

Based on the above, Applicants respectfully request that the Examiner reconsider and withdraw all outstanding rejections and objections. Favorable consideration and allowance are earnestly solicited. Should there be any questions after reviewing this paper, the Examiner is invited to contact the undersigned at 508-898-8603.

Respectfully submitted,
MUIRHEAD AND SATURNELLI, LLC

Date: November 9, 2007

Donald W. Muirhead
Registration No. 33,978

Muirhead and Saturnelli, LLC
200 Friberg Parkway, Suite 1001
Westborough, MA 01581
Phone: (508) 898-8601
Fax: (508) 898-8602